Disclosure BOC8-2000-0079

Created By: James Lewis   **Created On:** 09/26/2000 09:28:51 AM
Last Modified By: Elaine Venturelli   **Last Modified On:** 09/27/2000 11:41:38 AM

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Required fields are marked with the asterisk (*) and must be filled in to complete the form .

Summary

Status	Under Evaluation
Processing Location	BOC
Functional Area	Speech Development & Customization (███████)
Attorney/Patent Professional	Richard Tomlin/Boca Raton/IBM
IDT Team	███████West Palm Beach/IBM
Submitted Date	09/26/2000 11:11:39 AM
Owning Division ███████	██
███████ ███████	17
Incentive Program	
Lab	
Technology Code	

Inventors with Lotus Notes IDs

Inventors: James Lewis/West Palm Beach/IBM, Ciprian Agapi/West Palm Beach/IBM

Inventor Name > denotes primary contact	Inventor Serial	Div/Dept	Manager Serial	Manager Name
> Lewis, J.R. (Jim)	████	████	████	███████
Agapi, Ciprian				

Inventors without Lotus Notes IDs

IDT Selection
Main Idea

*Title of disclosure (in English)
Compressed list presentation for speech user interfaces

*Idea of disclosure

1. Describe your invention, stating the problem solved (if appropriate), and indicating the advantages of using the invention.
When using a speech-only system (e.g., using a telephone to connect to a speech server), human memory limitations become an issue when presenting a list of choices to a user. This disclosure describes a method for compressing certain types of lists to make it easier for users to select items. The basic idea is to collect together items that start with one or more common content words, then to present this shorter list to users rather than making them listen to the entire list.

2. How does the invention solve the problem or achieve an advantage,(a description of "the invention", including figures inline as appropriate)?
Suppose the user of a book-ordering system has made a request that returns a large number of titles, as in:

Sys: Type of book?

User: What do you have on usability?

Sys: Searching ... Found 31 titles. Listing titles. For more information, speak a title.

Ergonomics for Beginners
Ergonomics in Computerized Offices
Ergonomics: Advanced Methods
The Ergonomics of Working Postures
The Ergonomics of Workspaces and Machines
Fitting the Task to the Human
A Handbook of Work and Organizational Psychology
Handbook of Control Design and Ergonomics
Handbook of Human Factors and Ergonomics
Handbook of Human-Computer Interaction
Handbook of Manual Materials Handling
Human Factors and Speech Technology
Human Factors in Air Traffic Control
Human Factors in Consumer Products
Human Factors in Nuclear Safety
Human Factors in Product Design
The Human Factors of Alarm Design
Risk
Risk Analysis for Process Plant, Pipelines and Transport
Risk Analysis in Project Management
Risk and Misfortune
Risk Management
Usability Evaluation by Questionnaire
Usability Evaluation in Industry
Work and Aging
Work and Health
Work and Technology
Work Design in Practice
Work Fitness
Work Rules
Work-Related Musculoskeletal Disorders

User: Repeat.

Rather than listing all the titles individually, the application of this disclosure would result in the presentation of a smaller, more general list created by analyzing the initial words of each title, as in:

Sys: Type of book?

User: What do you have on usability?

Sys: Searching ... Found 31 titles. For more information, choose a title or title group.

Ergonomics
Fitting the Task to the Human
Handbook
Human Factors
Risk
Usability Evaluation

Work

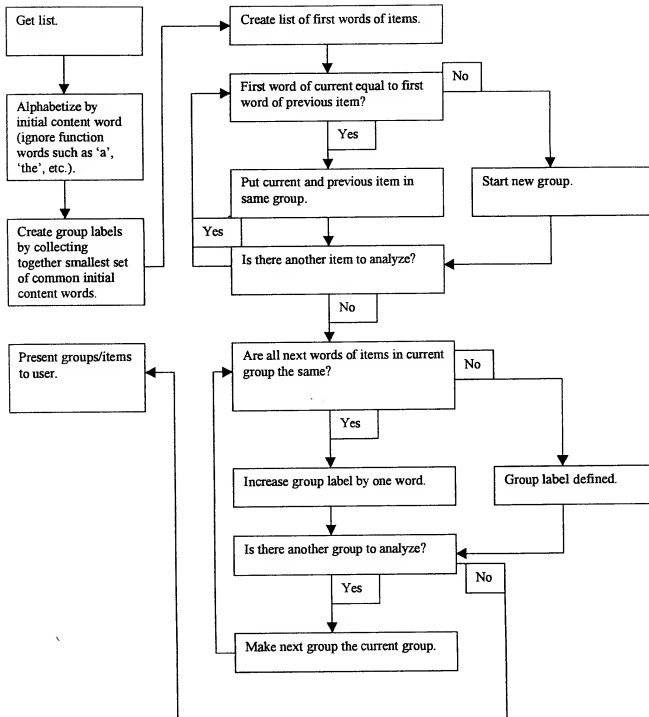User: Usability Evaluation

Sys: 2 titles under Usability Evaluation. Choose one.

         Usability Evaluation by Questionnaire
         Usability Evaluation in Industry

User: Usability Evaluation in Industry

The following flowchart illustrates the compression method:

```
┌─────────────┐          ┌──────────────────────────────┐
│ Get list.   │      ┌──→│ Create list of first words of items. │
└─────┬───────┘      │   └──────────────┬───────────────┘
      │              │                  │
      ↓              │                  ↓
┌─────────────┐      │   ┌──────────────────────────────┐   No
│ Alphabetize by │   │   │ First word of current equal to first │────→
│ initial content word │ │ word of previous item?         │
│ (ignore function│    │  └──────────────┬───────────────┘
│ words such as 'a',│  │              Yes │
│ 'the', etc.).   │    │                  ↓
└─────┬───────┘      │   ┌──────────────────────────────┐   ┌──────────────┐
      │              │   │ Put current and previous item in │   │ Start new group. │
      ↓              │   │ same group.                   │   └──────────────┘
┌─────────────┐   Yes│   └──────────────┬───────────────┘
│ Create group labels │ │                  │
│ by collecting   │    │                  ↓
│ together smallest set│ │ ┌──────────────────────────────┐
│ of common initial │  │  │ Is there another item to analyze? │
│ content words.  │    └──└──────────────────────────────┘
└─────────────┘                          │ No
                                         ↓
┌─────────────┐          ┌──────────────────────────────┐  No
│ Present groups/items │←─│ Are all next words of items in current │──→
│ to user.    │         │ group the same?                │
└─────────────┘          └──────────────┬───────────────┘
                                     Yes │
                                         ↓
                         ┌──────────────────────────────┐   ┌──────────────┐
                         │ Increase group label by one word. │  │ Group label defined. │
                         └──────────────┬───────────────┘   └──────────────┘
                                        │
                                        ↓
                         ┌──────────────────────────────┐
                         │ Is there another group to analyze? │  No
                         └──────────────┬───────────────┘
                                    Yes │
                                        ↓
                         ┌──────────────────────────────┐
                         │ Make next group the current group. │
                         └──────────────────────────────┘
```

As an additional illustration, let the following list of tokens represent a set of items to present to the user.

```
W1    W2   W3   W4
W1    W5   W6   W7
W1    W8   W9   W10
W11  W12  W13  W14
W11  W12  W15  W16
W17  W18  W19
```

*Critical Questions (Questions 1 - 7 must be answered)

*Question 1

*Question 2

*Question 3

*Question 4

*Question 5

*Question 6

*Question 7

Question 8

Question 9

Patent Value Tool ████████████████████████

████████████████████████

Market

████████████████████████

CLAIMS

████████████████████████

PORTFOLIO NEED

████████████████████████

EXPLOITATION & ENFORCEMENT

████████████████████████

BUSINESS VALUE

████████████████████████

Post Disclosure Text & Drawings

(Form Revised 12/17/97)

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November 17, 2000

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REF: Invention Disclosure: BOC8-2000-0079
     Title: COMPRESSED LIST PRESENTATION FOR SPEECH USER
               INTERFACES
     IBM Docket: BOC9-2000-0073

     Invention Disclosure: BOC8-2000-0092
     Title:

     IBM Docket: BOC9-2000-0077

Dear Steve,

Please prepare and file the above referenced cases with the U.S.
Patent and Trademark Office. A copy of the invention disclosure
and technical evaluation are enclosed for your preparation of the
applications in accordance with IBM's format.

Sincerely,

Richard A. Tomlin
Consulting Attorney

Enclosures